Department of Energy
Washington, DC 20585

April 28, 2005

Dr. Robert Rosner, [ ]
Argonne National Laboratory
9700 South Cass Avenue
Argonne, IL 60439-4832

Subject: Argonne National Laboratory, Price-Anderson Amendments Act Program Review

Dear Dr. Rosner:

The Department of Energy's (DOE) Office of Price-Anderson Enforcement (OE) conducted a review of your Price-Anderson Amendments Act (PAAA) program and a limited review of your management and independent assessment programs during March 15-16, 2005. This review included pertinent PAAA program and assessment program documentation and interviews with key Argonne National Laboratory (ANL) personnel.

Your PAAA program was evaluated against the criteria and guidance established by DOE Enforcement Guidance Supplement 00-02, *Price -Anderson Amendment Act (PAAA) Program Reviews .* As part of this review, your processes for identifying and screening nuclear safety noncompliances for PAAA applicability, reporting applicable noncompliances into DOE's Noncompliance Tracking System, your internal tracking and trending of noncompliances, and your causal analysis and corrective action processes were evaluated.

Overall, our review concluded that your PAAA program fell short of DOE expectations and guidance. Though the review did identify some strengths, the overall structure of your program lacks the rigor expected of DOE contractor PAAA programs. Weaknesses in the areas of human resource allocation, implementing procedures, timeliness of noncompliance screening and evaluation, assessment of divisional PAAA activities, and trending and analysis for programmatic or repetitive issues are demonstrative of this lack of rigor. Of particular note is the failure of your PAAA program to screen and evaluate the many nuclear safety issues captured in a n Argonne Site Office assessment of your radiation protection program in October 2003. We are currently considering a more formal investigation of these issues.

I had a certain set of expectations for your program upon initiation of this review of your PAAA program, based in part upon the results of our PAAA program review in July 2000 and the ANL personnel dedicated to support your program. However, I am

disappointed with the apparent regression of your PAAA program as well as with the failure of the program to sustain improvements previously made.

The strengths and weaknesses of your PAAA and assessment programs are identified below and are further described in more detail in the enclosed report.

PAAA Program Strengths

- The Alternate PAAA Coordinator is knowledgeable of all aspects of the ANL PAAA program and is working diligently to address the PAAA noncompliance evaluation backlog.
- The ANL PAAA program is organizationally situated such that the PAAA coordinator has direct access to the Laboratory Director.
- The ANL Plant and Facility Services Division personnel are knowledgeable of PAAA requirements and expectations and are appropriately identifying and screening potential noncompliances.
- Noncompliance reportability evaluations are conducted to OE specified criteria and appropriately evaluated.
- The ANL PAAA Review Committee dissenting positions are recorded.
- The September 2004 self-assessment of the ANL PAAA program was comprehensive, inquisitive, and conducted in accordance with OE guidance.

PAAA and Assessment Program Weaknesses

- Adequate human resources are not being dedicated to the ANL PAAA program
- The ANL PAAA program implementing procedure is not reflective of actual practice and does not address some key elements of the program.
- Divisional PAAA activities are not periodically assessed to assure that ANL potential noncompliance screening is being conducted consistently and to ANL expectations.
- Divisional screening of noncompliances is inconsistent. Some divisions such at the Plant and Facility Services Division are performing this function to OE expectations while there is indication that other ANL divisions are not.
- ANL failed to identify and screen significant radiological protection program deficiencies found in an Argonne Site Office assessment.
- Screening potential noncompliances is not conducted in a timely manner.
- Noncompliances are not being evaluated in a timely manner.
- Procedural documentation on how and when causal analysis is being performed on noncompliances is not present.
- NTS report closure has occurred without all corrective actions being completed.
- Trending and analysis, as defined in the ANL PAAA procedure, is not being conducted.
- A formal program for trending and analysis of operational data for the identification of repetitive or programmatic noncompliances has not been established.
- PAAA training requirements are not established in the ANL PAAA program implementing procedure.

- Periodic PAAA refresher training is not being conducted for those personnel responsible for PAAA activities.
- Yearly planning of independent assessments is not being accomplished.
- The ANL EQO independent assessment program has not been evaluated for effectiveness.
- The number of ANL independent assessments in the area of nuclear or radiological safety is insufficient.

No reply to this letter is required. Please contact me at (301) 903-0100 or have your staff contact Richard Day at (301) 903-8371 if you have any questions.

Sincerely,

Stephen M. Sohinki
Director
Office of Price-Anderson Enforcement

Enclosure: PAAA Program Review

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Price-Anderson Amendments Act Program Review
Argonne National Laboratory

I. Introduction

During February and March 2005, including a site visit on March 15-16, 2005, the Department of Energy (DOE) Office of Price -Anderson Enforcement (OE) conducted a review of the Price-Anderson Amendments Act (PAAA) program implemented by Argonne National Laboratory (ANL). OE staff performed a review in accordance with DOE Enforcement Guidance Supplement 00-02, *Price Anderson Amendment Act Program Reviews.* This review evaluated (1) ANL's PAAA program pertaining to the identification and screening of nuclear safety noncompliances, (2) the method for determining a noncompliance's reportability to the DOE Noncompliance Tracking System (NTS), (3) the causal determination process for noncompliances reported to the onsite tracking system and the NTS, and (4) corrective action tracking, implementation, and closure. OE staff also reviewed ANL's Management and Independent Assessment programs.

II. General PAAA Program Implementation

The ANL PAAA program is formally established by and described in the ANL Environment, Safety and Heath Manual, chapter 1, section 1.2, *Price -Anderson Amendments Act Compliance Validation and Noncompliance Reporting Program,* dated December 15, 2004. This procedure provides the general framework by which ANL identifies, evaluates, reports, tracks, corrects, and trends PAAA noncompliances. Responsibilities of the ANL PAAA Division Directors/Division Heads (DD/DH) are delineated in the procedure to include the identification and screening of divisionspecific potential noncompliances. Responsibilities of the PAAA Coordinator/Alternate include identification and screening of site-wide potential noncompliances, evaluating potential noncompliances for NTS reportability in conjunction with the PAAA Review Committee, entering reports into NTS, tracking corrective actions, and reviewing operational data to identify trends.

This procedure has several weaknesses in that it fails to adequately describe the program as it currently exists. Specifically, (1) the application of formal or informal causal analysis for noncompliances is not established, (2) guidance on timeliness for noncompliance screening and evaluation is not stated, (3) guidance on the frequency of convening the PAAA Review Committee is not stated, (4) PAAA training expectations for ANL personnel are not established, (5) periodic assessment of PAAA activities to

include those at the division level is not addressed, and (6) trending and analysis of PAAA noncompliances is not performed as described in the procedure.

Sufficient and technically competent staff has been assigned to perform the rudimentary functions of the ANL PAAA program such as screening, evaluation, and reporting of noncompliances. However, the current staffing is deemed insufficient to meet those aspects of the ANL PAAA program such as (1) trending and analysis of data, (2) periodic assessment of the program or the PAAA activities at the ANL divisional level, (3) corrective action verification, and (4) PAAA training, all of which are considered equally important to any properly implemented PAAA program.

As mentioned previously, no formal PAAA training requirements have been procedurally established. However, discussions with ANL personnel revealed that PAAA training is provided as part of General Employee Training. In addition, formal PAAA training was provided by the PAAA coordinator in 2001. Since then, PAAA Computer Based Training (CBT) is made available to those who desire this additional training. However, this CBT is not mandatory and as such some personnel who could benefit from the CBT may opt out of the training. Formal refresher training has not been established by ANL . Thus, new and emerging issues relative to PAAA activities are not addressed.

III. PAAA Organizational Relationship

The ANL PAAA Coordinator (currently serving as the Chief Operations Officer for the Laboratory), who is independent of ANL line programs, reports directly to the Laboratory Director. Interviews with the PAAA Coordinator indicate that he has unfettered access to senior ANL management when PAAA issues arise. Once fully trained, the Director for Environment, Safety and Health/Quality Assurance Oversight (EQO) will serve as the new ANL PAAA Coordinator.

IV. Identification and Screening of Noncompliances

ANL Environment, Safety and Heath Manual, chapter 1, section 1.2, defines the process by which ANL identifies and screens potential noncompliances. DD/DHs across the site have the primary responsibility for identifying and screening potential noncompliances for their division. Issues that do not represent potential noncompliances are tracked and corrected at the divisional level. Issues that are determined to be potential noncompliances are forwarded to the PAAA Coordinator for evaluation. The ANL PAAA Coordinator also identifies and screens for potential noncompliances that may have surfaced as a result of meetings, correspondence, external assessments, etc. Trending and analysis of issues for potential repetitive or programmatic noncompliances is done by both the PAAA Coordinator and the PAAA Review Committee and will be discussed in more detail later in this report. In reviewing the various sources for PAAA noncompliance screening, OE concluded that ANL is drawing from a number of different sources of operational data in performing its PAAA noncompliance screening. OE did interview staff from the Plant and Facility Services (PFS) division and the subordinate Waste Management Operations staff. Staff

interviewed were knowledgeable of nuclear safety rules and ANL PAAA requirements. PFS associated Occurrence Reporting and Processing System reports were appropriately captured for screening and properly evaluated. A sample of assessment related issues (internal and external) were reviewed to again assure that issues were being captured and properly evaluated. No inconsistencies were observed. It is noted that PFS is responsible for approximately 40 percent of all positive noncompliance screens identified in 2003 and 2004 (NTS reportable and internally tracked).

The decentralized approach used by ANL to identify and screen potential noncompliances places an increased burden on the PAAA Coordinator to assure that all divisional PAAA activities are performed consistently and to ANL expectations and that divisional personnel involved with PAAA identification and screening are properly trained. ANL provided no indication that assessments of divisional PAAA activities have been accomplished. This lack of assessment is further exacerbated by the fact that the alternate PAAA Coordinator has had indication of inconsistency in screening potential noncompliances and has recently had to request that negative divisional screens be reported to him for further evaluation. Of particular concern was the failure on the part of ANL to screen several potential noncompliances associated with an Argonne Site Office Radiation Protection Program assessment. When viewed individually, some of the issues identified in the assessment are viewed by OE to have safety significance associated with them. When viewed collectively, the issues appear to portray a programmatic breakdown in the ANL Radiation Protection Program. In addition, a review of the PAAA Coordinator's Event Log indicates that the time taken from issue identification to screening evaluation has not met OE's expectations. In a few cases the screening took longer than six months to complete.

V. Evaluation for Reportability

For those issues in which it was determined that a PAAA noncompliance has occurred, as determined through the screening of issues against the applicable nuclear safety requirements, ANL then evaluates these noncompliances for reportability into the NTS. An initial reportability determination is made by the PAAA Review Committee, which is comprised of several subject matter experts from across the laboratory. A noteworthy practice of documenting committee dissenting opinions was observed. If the committee recommends that the issue is not NTS reportable and the PAAA Coordinator agrees, corrective actions are developed and tracked at the divisional level. If the committee recommends that the issue is NTS reportable and the PAAA Coordinator agrees, an NTS report is written, entered into the NTS, and corrective actions are developed and tracked. The PAAA Coordinator does have the authority to overturn the PAAA Review Committee recommendations. This has occurred in a few instances in which the PAAA Coordinator, upon receipt of additional information, overturned the Review Committee recommendation to track a noncompliance internally and decided to report the issue into the NTS.

OE reviewed all noncompliance reportability evaluations conducted in 2003 and 2004 and found that issues were appropriately evaluated to specified OE criteria. One issue

was noted in that there was some confusion as to what constitutes a reportable willful noncompliance. This issue was discussed and appropriate resolution was achieved. As with screening of potential noncompliances, several examples of reportability determinations taking several months to complete were observed.

VI. Cause Determination and Corrective Action Management

The ANL process for corrective action management is contained in the Argonne National Laboratory-East Quality Assurance Program Plan, part 2, chapter 1, ANL-E procedure 1.2, *Corrective Actions Development and Tracking,* dated 06/22/04. This procedure is applicable only to those corrective actions derived from external assessments and internal assessments conducted by the ANL EQO. Responsibility for corrective action identification and implementation lies with the effected line organization. If the corrective action(s) is cross cutting several line organizations or is institutional in nature, the EQO will coordinate corrective action development with input provided from effected line organizations. Tracking of site-wide corrective actions is typically accomplished using *EQO Track* or *EQO Sharepoint.* ANL did not provide a similar procedure for corrective action management of those issues which are specific to a particular line organization. In practice, the affected ANL line organi zation is responsible for corrective acti on identification and implementation. The level of sophistication of corrective action tracking varies among the ANL line organizations depending on the complexity and the hazards associated with the organization. Corrective actions for NTS reportable noncompliances are tracked both by EQO and the responsible line organization(s). Corrective actions for non-NTS reportable noncompliances are tracked by the responsible line organization(s).

Validation and closure of site-wide corrective actions are accomplished by the Associate Laboratory Director (ALD)/Chief Operating Officer, Environment, Safety and Heath/ Quality Assurance (ESH/QA) representative. Validation and closure of division-specific corrective actions is accomplished by the cognizant ALD ESH/QA representative. During the review, OE observed that ANL, at least in one case, validated and closed an NTS report without all *specific* corrective actions being completed. This was done by initially identifying a corrective action in NTS to complete a root cause analysis and develop a corrective action plan. This was accomplished and the report was closed. However, the corrective actions specific to the corrective action plan were not completed at the time the NTS report was closed. OE stated that this practice did not meet its expectations in that once the corrective action plan is completed the NTS report should be loaded with all identified corrective actions to include target completion dates.

ANL procedurally recommends that verification of corrective acti on effectiveness be conducted. There was some indication that this verification was being accomplished. However, the verification of corrective actions associated with NTS reportable noncompliances is not included as a formally documented final corrective action as it is with some other DOE contractors.

Although not procedurally defined, ANL uses a graded approach to root cause determination from asking the five why's to more formal TapRoot™ analysis. The ANL procedure governing its PAAA program is silent on the application of root cause analysis to NTS reportable or non-reportable noncompliances. However, as a matter of practice TapRoot™ or some other formal method of causal analysis is typically performed for NTS reportable noncompliances. For those noncompliances that are not NTS reportable, a graded approach to causal analysis is used.

OE also examined how ANL is performing extent of condition reviews to assure that vulnerabilities identified during assessments, investigations and causal analysis are reviewed for potential similar vulnerabilities across other ANL line organizations. The conduct of extent of condition reviews are not explicitly captured in ANL's procedures. However, ANL does procedurally allude to evaluating root causes of nonconformances for organization-wide application and that the results of incident investigation, causal analysis and associated corrective actions be implemented to address issues at the local level, the organizational level, and the institutional level.

VII. Trending for Repetitive and Programmatic Noncompliances

ANL does not have a procedure detailing requirements relative to trending and analysis of operational data. Rather, ANL integrates trending and analysis requirements in other procedures/manuals in which this topic is appropriate. The procedure governing the ANL PAAA Program does address performance analysis and identification of trends. However, ANL does not follow this process. What currently is being used by ANL to identify repetitive or programmatic issues is an informal review of historical noncompliances captured in the PAAA Coordinator's Event Log. This informal review has identified some repetitive/programmatic issues such as the recently submitted NTS report on a programmatic breakdown of the ANL Material Control and Accountability Program. In addition, OE could discover no evidence of trending and analysis of operational data being conducted by ANL line organizations for repetitive or programmatic noncompliances specific to the organization. The current effort by the ANL PAAA Coordinator to bin noncompliances into six categories and examine these data over time to determine if there are any undesirable trends is viewed as a step in the right direction. The OE review concluded that the process by which ANL trends and analyzes data for the identification of repetitive or programmatic noncompliances lacks the maturity expected by OE.

VIII. Management/Independent Assessment Programs

ANL formally establishes its management and independent assessment programs by the following two procedures:

- Argonne National Laboratory – East Quality Assurance Program Plan, part 2, chapter 3, ANL-E Procedure 3.1, *Management Assessment,* dated 08/14/02
- Argonne National Laboratory – East Quality Assurance Program Plan, part 2, chapter 3, ANL-E Procedure 3.2, *Independent Assessment,* dated 06/10/02

The management assessment procedure describes an annual management assessment coordinated by ANL EQO, which is a planned review of operations and activities to determine the effectiveness of ANL management processes. These management assessments are conducted at the ANL divisional level, subsequently rolled up to the ALD level and reported to EQO. A review of some of the divisional and roll-up ALD management assessment reports indicate variability in the quality of the management assessments being conducted. Often the assessment highlights current practices in a given subject area and lists initiatives and accomplishments or best practices. However, some the assessments lacked a self-critical and technically inquisitive examination of operations identifying weaknesses or opportunities for improvement is a given area. Overall, the unique ANL approach to a coordinated annual management assessment is viewed as a positive approach to management assessment if properly conducted. In addition to the previously described annual management assessment, ANL line managers conduct periodic management assessments of their operations. No specific training requirements exist for those ANL line managers performing management assessment activities. OE encourages ANL management to initiate a formal training program for those managers who are responsible for performance assessment activities.

The independent assessment procedure describes the performance of independent assessments by the EQO. Independent assessments may either be invited by ANL line management (little evidence that this is being done) or imposed by an organization external to that being assessed. No evidence of i ndependent assessment planning by EQO or ANL divisions prior to the upcoming calendar year, as required by procedure, was provided by ANL. However, the 2005 EQO independent assessment plan was in preparation during the time of the OE review. No evidence was provided by ANL that the EQO independent assessment program has been evaluated for effectiveness as required by procedure. Requirements for *Lead Assessors* designated to lead independent assessment teams is defined in Argonne National Laboratory Quality Assurance Program Plan, part 2, chapter 3, ANL-E Procedure 3.5, *Lead Assessor,* dated 01/14/05. A review of ANL sponsored independent assessments indicate that during 2003 and 2004, 19 independent assessments were conducted of which four involved nuclear/radiological safety. The limited number of assessments in this area seems low given the current nuclear and radiological hazards present at the Laboratory.

IX. Conclusion

The OE review determined that the ANL program currently does not meet DOE expectations and guidance. Some strengths and several weaknesses were identified as previously discussed. OE is disappointed with the apparent regression of the ANL PAAA Program. As stated in your September 2004 self-assessment of the ANL PAAA program, this lack of performance may be due to a reduction in human resources dedicated to routine PAAA functions as a result of a decrease in nuclear and radiological operations in both complexity and hazard over the past several years. However, significant nuclear and radiological hazards remain and it is the OE

expectation that ANL remain vigilant and aggressive in its approach to controlling these hazards. A lapse in ANL PAAA performance, as demonstrated through this review, is unacceptable.

The DOE Enforcement Policy (10 CFR 820, Appendix A) has provided positive incentives for contractors who identify, report, and promptly and comprehensively correct nuclear safety noncompliances. The weaknesses identified in this report, if not corrected, could impact the application of enforcement discretion in any future enforcement action.